

FILE 'BIOSIS, MEDLINE, EMBASE, EMBAL, SCISEARCH, BIOTECHDS, CAPLUS'  
ENTERED AT 18:10:28 ON 23 JUL 2003

L1 491 S FLAP! AND ((SEXUAL)PCR) OR (SHUFFL?) OR (EVOLUTION?)  
OR (ERR  
L2 274 DUP REM L1 (217 DUPLICATES REMOVED)  
L3 0 S L1 AND (GLYCOSYLASE? OR (METHYLATE?)) AND (LCR?)  
L4 1 S L1 AND (GLYCOSYLASE? OR (METHYLATE?))  
L5 273 S L2 NOT L4  
L6 0 S L5 AND (LCR?)  
L7 8 S L5 AND (LIGAT?)  
L8 9 S L2 AND (FLAP! (S) ENDONUCLEASE?)  
L9 4 S L8 NOT L7  
L10 3 S L5 AND (FEN)  
L11 0 S L10 NOT L9  
L12 11 S L5 AND (FEN?)  
L13 7 S L12 NOT L9  
L14 349 S (FEN OR FLAP!) (S) (ENDONUCLEASE?)  
L15 327 S L14 NOT L1  
L16 5 S L15 AND ((SEXUAL)PCR) OR (SHUFFL?) OR (EVOLUTION?) OR  
(ERRO  
L17 4 DUP REM L16 (1 DUPLICATE REMOVED)

L17 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1997:652541 CAPLUS

DOCUMENT NUMBER: 127:327361

TITLE: The DNA repair endonuclease XPG binds to  
proliferating cell nuclear antigen (PCNA) and shares  
sequence elements with the PCNA-binding regions of  
FEN-1 and cyclin-dependent kinase inhibitor  
p21

AUTHOR(S): Gary, Ronald; Ludwig, Dale L.; Cornelius, Helen L.;  
Macinnes, Mark A.; Park, Min S.

CORPORATE SOURCE: Life Sciences Division, Los Alamos National  
Laboratory, Los Alamos, NM, 87545, USA

SOURCE: Journal of Biological Chemistry (1997), 272(39),  
24522-24529

CODEN: JBCHA3; ISSN: 0021-9258

PUBLISHER: American Society for Biochemistry and Molecular  
Biology

DOCUMENT TYPE: Journal

LANGUAGE: English

TI The DNA repair endonuclease XPG binds to proliferating cell  
nuclear antigen (PCNA) and shares sequence elements with the PCNA-binding  
regions of FEN-1 and cyclin-dependent kinase inhibitor p21

AB Proliferating cell nuclear antigen (PCNA) is a DNA polymerase accessory  
factor that is required for DNA replication during S phase of the cell

cycle and for resynthesis during nucleotide excision repair of damaged DNA. PCNA binds to flap endonuclease 1 (FEN-1), a structure-specific endonuclease involved in DNA replication. Here we report the direct phys. interaction of PCNA with xeroderma pigmentosum (XP) G, a structure-specific repair endonuclease that is homologous to FEN-1. We have identified a 28-amino acid region of human FEN-1 (residues 328-355) and a 29-amino acid region of human XPG (residues 981-1009) that contains the PCNA binding activity. These regions share key hydrophobic residues with the PCNA-binding domain of the cyclin-dependent kinase inhibitor p21Waf1/Cip1, and all three competed with one another for binding to PCNA. A conserved arginine in FEN-1 (Arg339) and XPG (Arg992) was found to be crucial for PCNA binding activity. R992A and R992E mutant forms of XPG failed to fully reconstitute nucleotide excision repair in an in vivo complementation assay. These results raise the possibility of a mechanistic linkage between excision and repair synthesis that is mediated by PCNA.

IT DNA repair

L Number	Hits	Search Text	DB	Time stamp
1	275	(((((evolution\$3 mutation mutagenesis shuffl\$4) and (DNA RNA CDNA mRNA oligonucleotide polynucleotide nucleic)) and (fragment SAME ligat\$4)) and ((solid adjl phase) surface immobili\$6 array)) and (exonuclease endonuclease Flap!)) and (Flap!))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/23 15:13
-	59142	(evolution\$3 mutation mutagenesis shuffl\$4) and (DNA RNA CDNA mRNA oligonucleotide polynucleotide nucleic)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/22 16:55
-	21240	((evolution\$3 mutation mutagenesis shuffl\$4) and (DNA RNA CDNA mRNA oligonucleotide polynucleotide nucleic)) and (fragment SAME ligat\$4)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/22 16:56
-	17667	((evolution\$3 mutation mutagenesis shuffl\$4) and (DNA RNA CDNA mRNA oligonucleotide polynucleotide nucleic)) and (fragment SAME ligat\$4)) and ((solid adjl phase) surface immobili\$6 array)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/22 16:58
-	11623	(((((evolution\$3 mutation mutagenesis shuffl\$4) and (DNA RNA CDNA mRNA oligonucleotide polynucleotide nucleic)) and (fragment SAME ligat\$4)) and ((solid adjl phase) surface immobili\$6 array)) and (exonuclease endonuclease Flap!))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/22 17:02